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RAW SEQUENCE LISTING

DATE: 03/08/2002

PATENT APPLICATION: US/10/080,299

TIME: 15:21:47

Input Set : A:\ICC127.ST25.txt

Output Set: N:\CRF3\03082002\J080299.raw

3 <110> APPLICANT: Birkett, Ashley J.
 5 <120> TITLE OF INVENTION: INFLUENZA IMMUNOGEN AND VACCINE
 7 <130> FILE REFERENCE: ICC 127.0 4564/84273
 C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/080,299
 10 <141> CURRENT FILING DATE: 2002-02-21
 12 <150> PRIOR APPLICATION NUMBER: 09/930,915
 13 <151> PRIOR FILING DATE: 2001-08-15
 15 <160> NUMBER OF SEQ ID NOS: 83
 17 <170> SOFTWARE: PatentIn version 3.1
 19 <210> SEQ ID NO: 1
 20 <211> LENGTH: 183
 21 <212> TYPE: PRT
 22 <213> ORGANISM: Hepatitis B virus
 24 <400> SEQUENCE: 1
 26 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
 27 1 5 10 15
 30 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
 31 20 25 30
 34 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
 35 35 40 45
 38 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
 39 50 55 60
 42 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
 43 65 70 75 80
 46 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
 47 85 90 95
 50 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
 51 100 105 110
 54 Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
 55 115 120 125
 58 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
 59 130 135 140
 62 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
 63 145 150 155 160
 66 Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
 67 165 170 175
 70 Gln Ser Arg Glu Ser Gln Cys
 71 180
 74 <210> SEQ ID NO: 2
 75 <211> LENGTH: 185
 76 <212> TYPE: PRT
 77 <213> ORGANISM: Hepatitis B virus
 79 <400> SEQUENCE: 2

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```

81 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
82 1 5 10 15
85 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
86 20 25 30
89 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
90 35 40 45
93 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
94 50 55 60
97 Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Gln Asp Pro Ala
98 65 70 75 80
101 Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys
102 85 90 95
105 Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
106 100 105 110
109 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
110 115 120 125
113 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
114 130 135 140
117 Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
118 145 150 155 160
121 Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
122 165 170 175
125 Arg Ser Gln Ser Arg Glu Ser Gln Cys
126 180 185
129 <210> SEQ ID NO: 3
130 <211> LENGTH: 185
131 <212> TYPE: PRT
132 <213> ORGANISM: Hepatitis B virus
134 <400> SEQUENCE: 3
136 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
137 1 5 10 15
140 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
141 20 25 30
144 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
145 35 40 45
148 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
149 50 55 60
152 Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala
153 65 70 75 80
156 Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Val Gly Leu Lys
157 85 90 95
160 Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
161 100 105 110
164 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
165 115 120 125
168 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
169 130 135 140
172 Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg
173 145 150 155 160

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Input Set : A:\ICCL27.ST25.txt

Output Set: N:\CRF3\03082002\J080299.raw

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176 Arg Thr Pro Ser Pro Arg Arg Arg Pro Ser Gln Ser Pro Arg Arg Arg
177                               165                               170                               175
180 Arg Ser Gln Ser Arg Glu Ser Gln Cys
181                               180                               185
184 <210> SEQ ID NO: 4
185 <211> LENGTH: 183
186 <212> TYPE: PRT
187 <213> ORGANISM: Hepatitis B virus
189 <400> SEQUENCE: 4
191 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
192 1                               5                               10                               15
195 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
196                               20                               25                               30
199 Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
200                               35                               40                               45
203 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp
204                               50                               55                               60
207 Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala
208 65                               70                               75                               80
211 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys
212                               85                               90                               95
215 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
216                               100                              105                              110
219 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
220                               115                              120                              125
223 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
224                               130                              135                              140
227 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
228 145                              150                              155                              160
231 Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
232                               165                              170                              175
235 Gln Ser Arg Glu Ser Gln Cys
236                               180
239 <210> SEQ ID NO: 5
240 <211> LENGTH: 183
241 <212> TYPE: PRT
242 <213> ORGANISM: Marmota monax
244 <400> SEQUENCE: 5
246 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu
247 1                               5                               10                               15
250 Asn Phe Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp
251                               20                               25                               30
254 Thr Ala Thr Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys
255                               35                               40                               45
258 Ser Pro His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Asp Glu
259                               50                               55                               60
262 Leu Thr Lys Leu Ile Ala Trp Met Ser Ser Asn Ile Thr Ser Glu Gln
263 65                               70                               75                               80
266 Val Arg Thr Ile Ile Val Asn His Val Asn Asp Thr Trp Gly Leu Lys

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Input Set : A:\ICC127.ST25.txt

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```

267          85          90          95
270 Val Arg Gln Ser Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln
271          100          105          110
274 His Thr Val Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr
275          115          120          125
278 Pro Ala Pro Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
279          130          135          140
282 Glu His Thr Val Ile Arg Arg Arg Gly Gly Ala Arg Ala Ser Arg Ser
283 145          150          155          160
286 Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro
287          165          170          175
290 Arg Arg Arg Arg Ser Gln Cys
291          180
294 <210> SEQ ID NO: 6
295 <211> LENGTH: 217
296 <212> TYPE: PRT
297 <213> ORGANISM: Spermophilus variegatus
299 <400> SEQUENCE: 6
301 Met Tyr Leu Phe His Leu Cys Leu Val Phe Ala Cys Val Pro Cys Pro
302 1          5          10          15
305 Thr Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp
306          20          25          30
309 Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Asn Phe
310          35          40          45
313 Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp Thr Ala
314          50          55          60
317 Ala Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys Ser Pro
318 65          70          75          80
321 His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Glu Glu Leu Thr
322          85          90          95
325 Arg Leu Ile Thr Trp Met Ser Glu Asn Thr Thr Glu Glu Val Arg Arg
326          100          105          110
329 Ile Ile Val Asp His Val Asn Asn Thr Trp Gly Leu Lys Val Arg Gln
330          115          120          125
333 Thr Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gly His Thr Val
334          130          135          140
337 Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Ala Pro
338 145          150          155          160
341 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu His Thr
342          165          170          175
345 Val Ile Arg Arg Arg Gly Gly Ser Arg Ala Ala Arg Ser Pro Arg Arg
346          180          185          190
349 Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg
350          195          200          205
353 Arg Ser Gln Ser Pro Ala Ser Asn Cys
354          210          215
357 <210> SEQ ID NO: 7
358 <211> LENGTH: 51
359 <212> TYPE: DNA

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Input Set : A:\ICC127.ST25.txt

Output Set: N:\CRF3\03082002\J080299.raw

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360 <213> ORGANISM: Artificial Sequence
362 <220> FEATURE:
363 <223> OTHER INFORMATION: plasmid pkk223
365 <400> SEQUENCE: 7
366 ttcacacagg aaacagaatt cccggggatc cgtcgacctg cagccaagct t      51
369 <210> SEQ ID NO: 8
370 <211> LENGTH: 38
371 <212> TYPE: DNA
372 <213> ORGANISM: Artificial Sequence
374 <220> FEATURE:
375 <223> OTHER INFORMATION: plasmid pkk223
377 <400> SEQUENCE: 8
378 ttcacataag gaggaaaaaa ccatgggatc cgaagctt      38
381 <210> SEQ ID NO: 9
382 <211> LENGTH: 24
383 <212> TYPE: PRT
384 <213> ORGANISM: Hepatitis B virus
386 <220> FEATURE:
387 <221> NAME/KEY: MISC_FEATURE
388 <222> LOCATION: (1)..(1)
389 <223> OTHER INFORMATION: Xaa at position 1 is methionine or absent. If methionine
then Xa
390     a in positions 2 through 8 are not absent
393 <220> FEATURE:
394 <221> NAME/KEY: MISC_FEATURE
395 <222> LOCATION: (2)..(2)
396 <223> OTHER INFORMATION: Xaa at position 2 is serine or absent. If serine then Xaa in
pos
397     itions 3 through 8 are not absent.
400 <220> FEATURE:
401 <221> NAME/KEY: MISC_FEATURE
402 <222> LOCATION: (3)..(3)
403 <223> OTHER INFORMATION: Xaa at position 3 is leucine or absent. If leucine then Xaa
in p
404     ositions 4 through 8 are not absent.
407 <220> FEATURE:
408 <221> NAME/KEY: MISC_FEATURE
409 <222> LOCATION: (4)..(4)
410 <223> OTHER INFORMATION: Xaa at position 4 is leucine or absent. If leucine then Xaa
in p
411     ositions 5 through 8 are not absent.
414 <220> FEATURE:
415 <221> NAME/KEY: MISC_FEATURE
416 <222> LOCATION: (5)..(5)
417 <223> OTHER INFORMATION: Xaa at position 5 is threonine or absent. If threonine than
Xaa
418     in positions 6 through 8 are not absent.
421 <220> FEATURE:
422 <221> NAME/KEY: MISC_FEATURE
423 <222> LOCATION: (6)..(6)
424 <223> OTHER INFORMATION: Xaa at position 6 is glutamic acid or absent. If glutamic
acid t
425     hen Xaa in positions 7 through 8 are not absent.

```

428 <220> FEATURE:
429 <221> NAME/KEY: MISC_FEATURE

Use of n and . or Xaa has been detected in the
Sequence Listing. Review the Sequence Listing
to ensure a corresponding explanation is present
in the <220> to <223> fields of each sequence
using n or Xaa

VERIFICATION SUMMARY

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Input Set : A:\ICC127.ST25.txt

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L:9 M:270 C: Current Application Number differs, Replaced Current Application Number

L:514 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9

L:518 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9